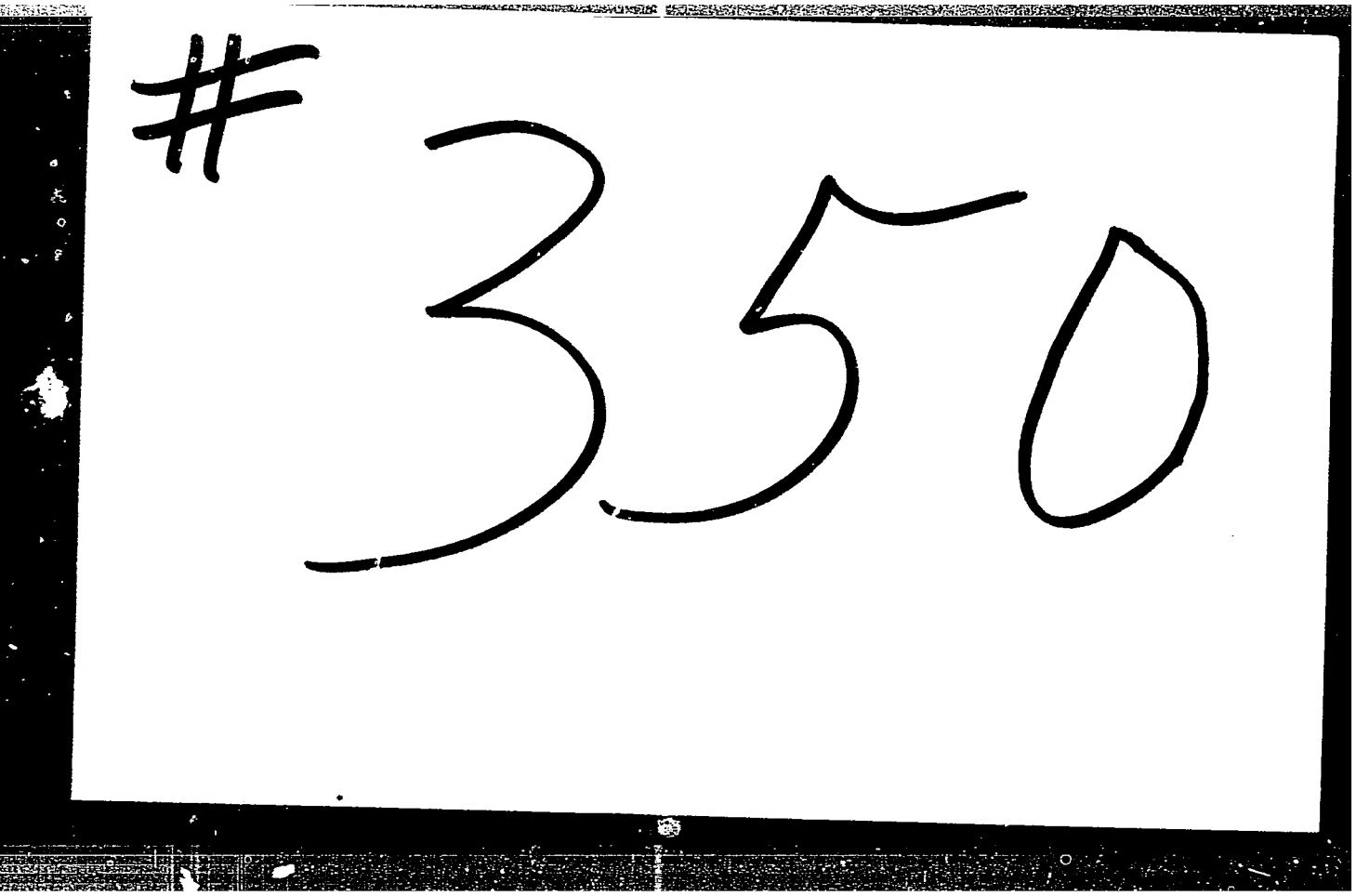
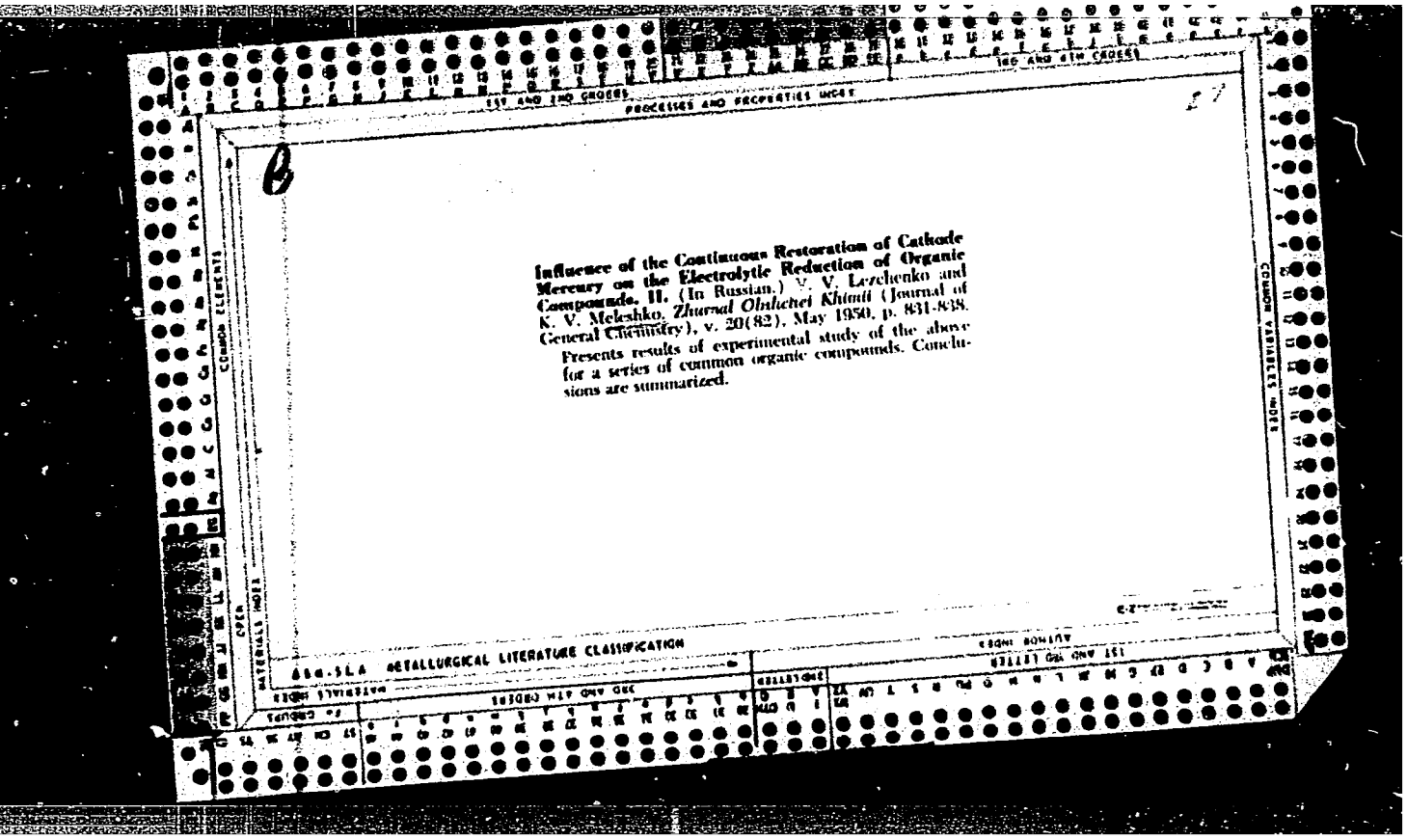


SHCHUKIN, Ya.A.; MELESHKO, I.S.

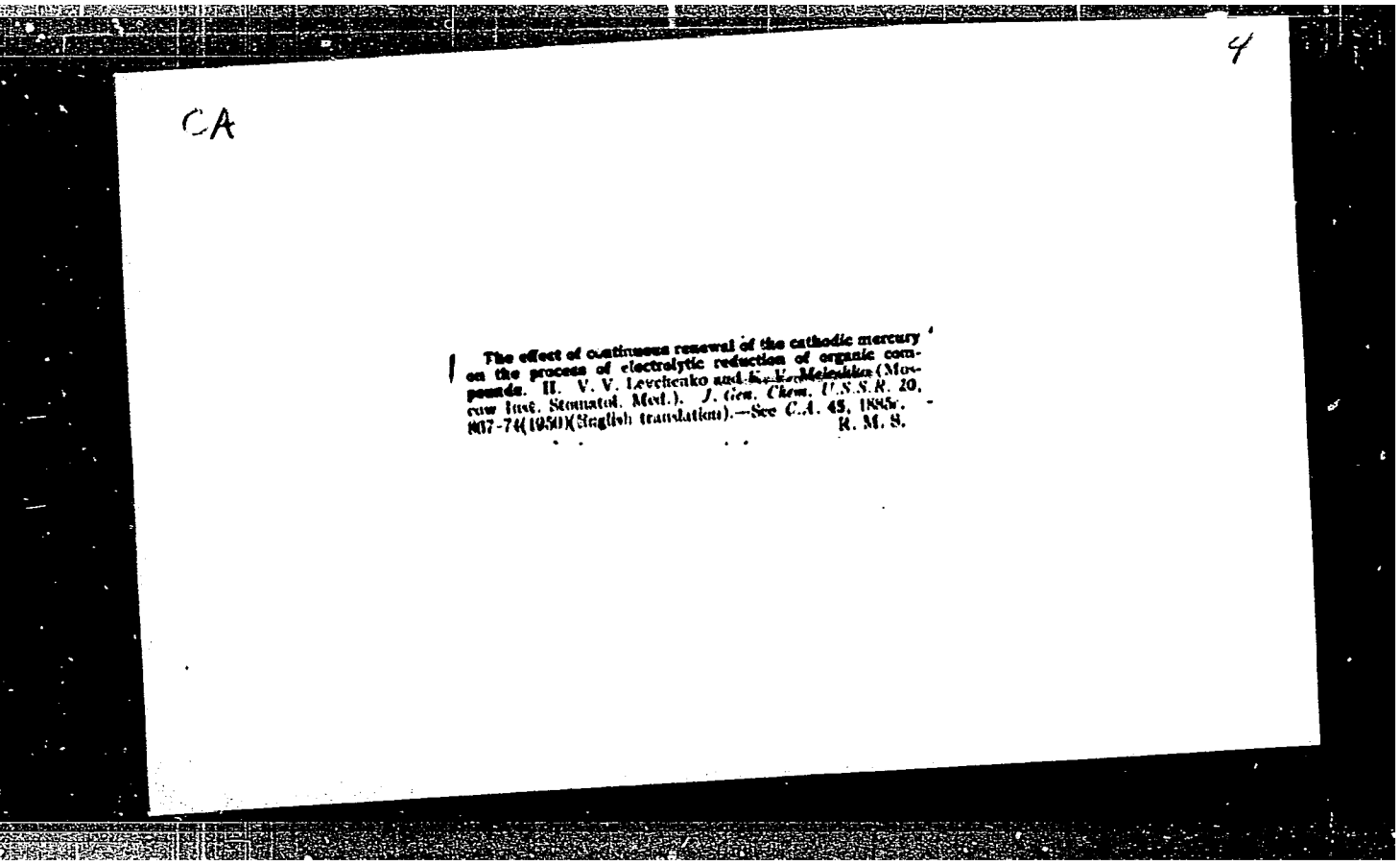
Changing the design of supporting walls of sliding pipes in a continuous furnace. Sbor.rats.predl.vnedr.v proizv. no.5:34-35 '60. (MIRA 14:8)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Furnaces, Heating)



Influence of the Continuous Restoration of Cathode Mercury on the Electrolytic Reduction of Organic Compounds. II. (In Russian.) V. V. Lezhenko and K. V. Meleshko. *Zhurnal Obshchei Khimii* (Journal of General Chemistry), v. 20(82), May 1950, p. 831-838.

Presents results of experimental study of the above for a series of common organic compounds. Conclusions are summarized.



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CA

The effect of continuous renewal of the cathodic mercury on the process of electrolytic reduction of organic compounds. II. V. V. Levchenko and [illegible] Melenkina (Moscow Inst. Stomatol. Med.). *J. Gen. Chem. U.S.S.R.* 20, 807-74(1950)(English translation).—See *C.A.* 45, 1885*i*.
R. M. S.

MELESHKO, K.V.

The amount of cobalt in certain food products of plant origin. K. V. Meleshko (Med. Stomatol. Inst., Moscow). *Voprosy Pitaniya* 15, No. 6, 43-7(1956).—The amts. of Co are given for several samples of watermelons, dill, squash, red cabbage, spinach, tomatoes, pumpkin, turnip (*Brassica rapa*), radish, horseradish, cucumbers, lettuce, carrots, potatoes, sorrel, white cabbage, rape (*Brassica napus rapifera*), onions, beets, cranberries, apples, cherries, pears, apricots, grapes, gooseberries, plums, red currents, *Vaccinium myrtillus*, *Vaccinium vitis-idaea*, lemons, oranges, raspberries, blueberries, garden and wild strawberries, polished rice, kidney beans, millet, buckwheat groats, oats, peas, mushrooms, rye bread, and walnuts. The amt. of Co in the products varied between 0.18 (watermelons) and 15.0 γ/100 g. (a special variety of peas; normally peas contain 5-7 mg. Co) of the product. Large amts. of Co (10-12 mg./100 g.) are present also in rape and wild strawberries (cultivated strawberries contain 3-5 mg. Co/100 g.). E. Wierbicki

MELESHKO, K. V.: Master Biol Sci (diss) -- "The cobalt content of food products in extended therapeutic diets". Moscow, 1959. 21 pp (Acad Med Sci USSR), 200 copies (KL, No 13, 1959, 103)

MELNIKO, K.V.

Cobalt content in food products of animal origin [with summary in English]. Vop.pit. 18 no.1:57-61 Ja-F '59. (MIRA 12:2)

1. Iz kafedry biokhimii (zav. - prof. A.E. Sharpenak) i kafedry obshchey khimii (zav. - dots. A.A. Zats) Moskovskogo meditsinskogo stomatologicheskogo instituta.

(FOOD,
cobalt in foods of animal origin (Rus))
(COBALT, determ.
in food of animal origin (Rus))

7 (3), 24 (7) SOV/48-23-10-29/39

AUTHORS: Lyalikov, K. S., Belonogova, I. N., Meleshko, K. Ye., Semenchenko, I. V., Kharchenko, A. P.

TITLE: A New Apparatus and a Method of Investigating the Spectra of Earth-surface Reflection

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 10, p 1247 (USSR)

ABSTRACT: At the Laboratoriya aerometodov AN SSSR (Laboratory for Aero-methods of the AS USSR) a new apparatus and a method were developed, which make it possible to investigate the spectral brightness of objects in aerial photographs. Two types of photoelectrical devices were developed. A. P. Kharchenko developed a photoelectrical spectrophotometer which operates within the range of from 400 to 1000 mμ. It is used for investigations carried out from the ground. For the purpose of investigating the spectral brightness of objects from an airplane, Meleshko and Semenchenko developed a fast single-beam photoelectric spectrometer, in the case of which recording takes place in an electron beam tube (a so-called "spectrovisor"). This device operates within the range of 450-900 mμ. Both devices were tested in 1958 with good success.

Card 1/2

A New Apparatus and a Method of Investigating the Spectra of Earth-surface Reflection

SOV/48-23-10-29/39

A method for the rapid construction of the curves of spectral brightness was worked out by means of which the spectral characteristic of a number of objects has already been obtained from aerial pictures taken in the South of the European part of the USSR.

Card 2/2

88228

S/006/60/000/012/002/002
B012/B063

9.5300 (also 2801)

AUTHORS: Voronkova, N. M., Meleshko, K. Ye., Semenchenko, I. V., Snytkin, A. V., and Shishkina, T. A.

TITLE: Use of the Spectrovisor for Studying the Spectral Brightness of Landscape Objects

PERIODICAL: Geodeziya i kartografiya, 1960, No. 12, pp. 20 - 25

TEXT: The spectral reflective power of natural objects has been studied for several years by the Laboratoriya aerometodov Akademii nauk SSSR (Laboratory for Aeromethods of the Academy of Sciences USSR). A quick-acting spectrophotometer (spectrovisor) has been designed for measuring the coefficients of spectral brightness of small and medium-size ground objects from the air (Ref., footnote p. 20). One of the spectrovisors built in 1959 by this laboratory and the method used to measure the coefficients of spectral brightness by airplane are described; several test results are given. The operating range of the spectrum extends from 450 to 950 mμ. The resolution determined from the half-width of the

Card 1/5

Use of the Spectrovisor for Studying the Spectral Brightness of Landscape Objects

S/006/60/000/012/002/002
B012/B063

mercury spectral line is 20 mμ. The root mean square error of the measurements is 2 - 3%. The instrument has a total weight of 80 kg and is fed with a current of 10 a from the net on board (27 v). The aero spectrovisor consists of a monochromator with a receiver and a recorder, and a feeder for the circuits. The instrument is fastened to a frame in the opening and turns round its horizontal axis. The specific feature in the determination of coefficients of the spectral brightness of natural objects is the fact that it is not possible to attain equal conditions of illumination and surveying for the object and the calibration instrument. In 1959, calibration was carried out on the plane by means of a calibration instrument before and after "spectrometrizing" of the object. In order to obtain a coefficient of the spectral brightness of the objects which corresponds to the brightness of baryta paper, the calibration instrument was calibrated against this paper in different light. 24 pictures were taken per second. Calibration in the air takes 1 - 2 sec. The interval between calibration and measurement is determined

Use of the Spectrovisor for Studying the Spectral Brightness of Landscape Objects

S/006/60/000/012/002/002
B012/B063

solely by the time needed for turning the instrument through 180° round its horizontal axis. In order to explain the effect of vibrations and other factors on the accuracy of aerial surveying, the same objects were "spectrometrized" with a photoelectric field spectrometer designed by the same laboratory in 1959. The results obtained according to this method were in good agreement with the data yielded by the spectrovisor. All results obtained agree with published data (Refs., footnote p. 24) on the spectral reflectivity of soil and vegetation. There are 5 figures, 1 table, and 3 Soviet references. t.

Card 3/5

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B012/B063

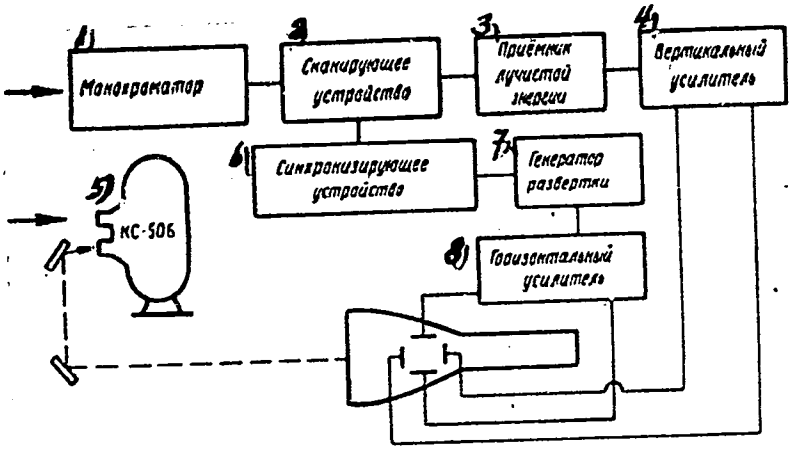


Рис. 1

Card 1/5

Legend to Fig. 1: 1) monochromator; 2) scanning equipment; 3) receiver of radiant energy; 4) vertical amplifier; 5) motion picture camera; 6) synchronizer; 7) sweep generator; 8) horizontal amplifier.

Card 5/5

MELESHKO, K.Ye.

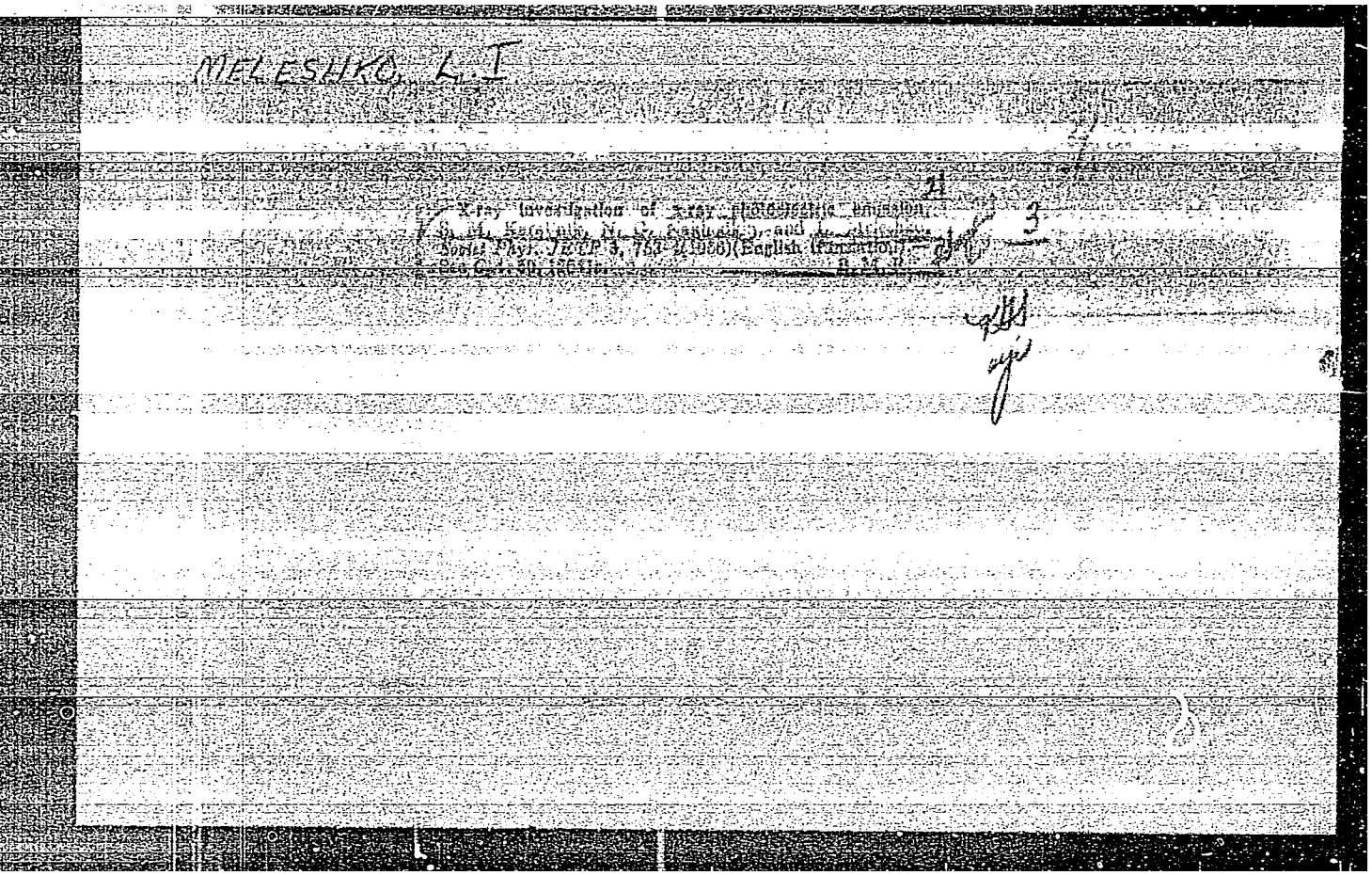
Decrease of morbidity among workers of the Soligorsk potassium Combine. Zdrav. Bel. 9 no.3:42-43 Mr '63 (MIRA 16:12)

1. Nachal'nik meditsinsko-sanitarnoy chasti Soligorskogo kaliynogo kombinata.

KARAL'NIK,S.M.; NAKHODKIN,M.G.; [redacted]

Microradiography of various simple substances by means of secondary electrons depending on their atomic number. Dop. AN URSR no 3:255-257 '55. (MLRA 8:11)

1. Kiivs'kiy derzhavniy universitet. Predstaviv diysniy chlen Akademii nauk URSR V.M.Lashkar'yov
(Atomic mass)



Meleshko, L.I

K-8

USSR/Optics - X-Rays

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 13156

Author : Karal'nik, S., Makhodkin, N., Meleshko, L.

Inst : Kive State University, USSR

Title : Radiographic Study of X-ray Photoelectronic Emission

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 4, 780-781

Abstract : An investigation was made of the dependence of the X-ray photoelectronic emission on the atomic number of the substance. Specimens of compared substances were placed on the photographic plate and exposed to x-rays through the plate. The photoelectron produced by this radiation, and as well as the secondary ("reflected") electrons, cause blackening of the photo plate; Thanks to the great hardness of the radiation (~ 200 kv), its direct photographic action on the plate is negligibly small. For a

Card 1/2

MELESHKO, L.N.

MAMBISH, I.Ye., kand.tekhn.nauk; PERTSOVSKIY, Ye.S., nauchnyy sotrudnik; RYBKINA, A.A., nauchnyy sotrudnik; TARASEVICH, B.V., nauchnyy sotrudnik; ZIBEL', B.Ya., byvshiy nauchnyy sotrudnik, kand.tekhn.nauk; ANTUSEVICH, F.P.; RYABEN'KAYA, N.K., inzh.; MELESHKO, L.N.; GEL'MAN, D.Ya., red.; CHERNYSHEVA, V.A., red.; GOLUBKOVA, L.A., tekhn.red.

[A method for accelerated determination of moisture in newly harvested wheat and rye] Metod uskorennogo opredeleniia vlazhnosti syrogo zerna pshenitsy i rzhi. Izd. 2-oe, dop. Moskva, Izd-vo tekhn.i ekon. lit-ry po voprosam mukomol'no-krupianoi, kombikormovoi promyshl. i elevatorno-skladskogo khoziaistva, 1957. 66 p. (MIRA 11:2)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut zerna i produktov yego pererabotki. 2. Opytnaya laboratoriya Vsesoyuznogo nauchno-issledovatel'skogo instituta zerna i produktov yego pererabotki pri Biyskom elevatore (for Zibel'). 3. Starshiy inspektor punkta Gosudarstvennoy khlebnoy inspektsii v Biyske (for Antusevich). 4. Zaveduyushchiy laboratoriey Biyskogo elevatora (for Ryaben'kaya) 5. Zamestitel' zaveduyushchego laboratoriey Biyskogo elevatora (for Meleshko).

(Wheat--Analysis) (Rye--Analysis)

MELESHKO, L.O.

"Investigation of the Rate of Crystallization of a Single Grain as a Method of Measuring Perimetric Energy." Cand Phys-Math Sci, Odessa State U imeni I.I. Mechnikov, Minsk, 1954. (KL, No 15, Apr 55)

SO: Sum.No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

06568
24(2) SOV/170-59-9-9/18

AUTHOR: Meleshko, L.O.

TITLE: An Investigation of the Kinetics of Crystallization of Betol, Salipyrine and Antipyrine

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 9, pp 69-73 (USSR)

ABSTRACT: The problem of determining the basic regularities in crystallization processes of supercooled liquids was analytically solved for a particular case by Kolmogorov [Ref 1], and the analytical expression for kinetic curves was obtained by Sirota [Ref 3]. The present paper describes an experimental investigation into kinetics of crystallization of betol, salipyrine and antipyrine, which was undertaken to find out whether kinetic equations could be applied for description of crystallization processes from a smelt. A droplet of smelted liquid to be crystallized was placed between two flat parallel vessels and was examined photoelectrically by measuring the degree of light absorption by the liquid, which depended on the amount of the crystallized phase in it. The results of experiments are shown in Figures 1, 2 and 3 for salipyrine, betol and antipyrine respectively, which represent kinetic curves of degree of crystallization versus time. The equation expressing this temporal dependence looks as

An Investigation of the Kinetics of Crystallization of Betol, Salipyrine and Antipyrine

follows:

$$S_\tau = S_o \left(1 - e^{-\frac{1}{3}\pi v^2 J \tau^3} \right)$$

where S_o and S_τ are areas occupied by the smelt at the beginning instant and after the time period τ respectively; v - is the linear speed of crystallization; J - is the probability of the formation of one crystallization center in 1 cm^2 of the area in which crystallization did not yet take place per 1 sec, τ - is time. In this case the growth of nuclei was possible along two dimensions only, and the case is considered as flat. The curves obtained from this equation are shown in Figures 1, 2 and 3 by full lines. The analysis of experimental data proves that, in spite of the complexity of crystallization processes from smelts, they can be satisfactorily described by kinetic equations. This agreement of theoretical and experimental data makes it possible to calculate time during which any fraction of the mother solution is crystallized and to use the relationships found for the determination of the structure of in-

06568

SOV/170-59-3-9/18

An Investigation of the Kinetics of Crystallization of Betol, Salipyrine and Antipyrine

gots or for calculating the rate of cooling a smelt necessary to obtain the wanted structure of the ingot.
There are: 4 graphs and 3 references, 2 of which are Soviet and 1 American.

ASSOCIATION: Institut stroitel'stva i arkhitektury AN BSSR (Institute of Construction and Architecture of the AS BSSR), Minsk.

Card 3/3

S/170/60/003/03/16/034
B014/B007

5.4110

AUTHOR: Meleshko, L. O.

TITLE: Investigation of the Crystallization of Undercooled Betol

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 3, pp.96-100

TEXT: The temperature dependence of the linear crystallization rate of various modifications of betol and the general transformation rate with various degrees of melt undercooling is dealt with. The investigations were carried out on preparations which were produced in the Khar'kovskiy khimfarmzavod (Khar'kov Chemico-pharmaceutical Factory). Observations showed that betol has some forms of nuclei of polymorphous crystals. Their rate of growth differs even under equal conditions. Thus, three types of nuclei were found in the melt at 24°C. Several data are given with respect to these modifications, and it is found that the linear crystallization rate of all forms of nuclei near melting point equals zero, that it attains a maximum value with undercooling, until it eventually decreases again. At the temperature of vitrification it is insignificant. This behavior is graphically represented in Fig. 1 for two betol-modifications. Herefrom, it may also be seen that temperature dependence differs. Further, data are given on the kinetics of the crystallization of undercooled betol. Two types of nuclei are mentioned. The phase transformation may, with the first type,

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be satisfactorily described by means of an S-shaped curve, in the case of the other, this curve is somewhat more complicated. By the occurrence of two modifications it assumes the shape of a double S-curve. This result is in agreement with that obtained by N. N. Sirota (Ref. 4). From the temperature dependence of the time required for complete transformation and from the temperature dependence of the time required for maximum transformation, the existence of several crystal modifications may be concluded. The dependence of the rate of phase transformation on the degree of undercooling is dealt with. The transformation is slow near the melting point, a decrease of temperature accelerates the transformation. Details of this temperature dependence are discussed. There are 2 figures and 5 Soviet references.

ASSOCIATION: Institut stroitel'stva i arkhitektury AN BSSR
(Institute of Building and Architecture of the AS BSSR)

84322

S/170/60/003/009/018/020X
B019/B060

5.4100

AUTHOR: Meleshko, L. O.

TITLE: Determination of the Temperature Dependence of the Crystallization Parameters of a Substance

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 9, pp. 114-116

TEXT: The linear crystallization velocity $v = K\exp\left[-\frac{D}{T\Delta T} - \frac{U}{RT}\right]$ (1) within the fluctuation theory of phase transformations is derived with the presupposition that the crystallization parameters, as, e.g., the activation energy U, or the factor K in (1), are independent of temperature. In the present paper the temperature-dependence of these parameters is determined for studying the fusion process of salol. Values of salol viscosity, taken from an earlier paper (Ref. 2), are given in Table 1 for the temperature range of from 244.16°K to 333.26°K. With these data the author set up the relation $\ln \eta = f(T)$, and, basing on the linear relationship between $\partial \ln\eta/\partial(1/T)$ and $\ln \eta$, he was able to set up the relation:

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84322

Determination of the Temperature Dependence of the Crystallization Parameters of a Substance

S/170/60/003/009/018/020X
B019/B060

$\partial \ln \eta / \partial (1/T) = a + b \ln \eta$ (3), from which the solution $\eta = \eta' \exp(-a/b) \exp\left\{\exp(b/T) c/b\right\}$ was obtained. After determining the constants a and b, the author bases on the theoretical equation $\eta = \eta_0 \exp(U/kT)$ to obtain the following relation for the activation energy as a function of temperature: $U(T) = 1.654 \cdot 10^{-4} RT \exp(2798/T)$ (6). The values for K and the diffusion coefficient D are given in Table 2 for the temperature range from 262° to 312°K, and Fig. 1 shows the logarithm of the linear crystallization rate as a function of the degree of undercooling. Ya. I. Frenkel' is mentioned(Ref. 1). There are 1 figure, 2 tables, and 3 references: 2 Soviet and 1 German.

ASSOCIATION: Institut stroitel'stva i arkhitektury AN BSSR, g. Minsk (Institute of Construction and Architecture of the AS BSSR, Minsk)

SUBMITTED: January 4, 1960

Card 2/2

5.1150
5 (4)

68335

S/076/60/034/01/005/044
B010/B014

AUTHOR: Meleshko, L. O.

TITLE: Investigation of the Dependence of the Linear Crystallization Rate Upon the Layer Thickness

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 1, pp 39 - 42 (USSR)

ABSTRACT: In this article the author proposes a new method used to measure the linear crystallization rate (LCR). LCR is measured according to the growth of the individual grains of a thin layer. In order to determine the conditions under which maximum accuracy of measurement is warranted, the author studied LCR of salol and salipyrine. The results of LCR measurement of salol, which were obtained within a wide range of supercooling, are shown in figure 1. It was found that, owing to insufficient heat elimination, the temperature line of LCR has a "plateau" in the case of crystallization in glass tubes, i.e., it has a temperature range in which LCR does not depend on supercooling. When using tubes of smaller diameter, the "plateau" is lowered due to the action of the surface layers of the glass, and the maximum of the LCR curve is shifted toward higher temperatures. Different results were obtained by studying LCR in thin layers,

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Investigation of the Dependence of the Linear Crystallization Rate Upon the Layer Thickness

S/076/60/034/01/005/044
B019/B014

after the growth of the individual grains. Here, the temperature curve exhibits a distinctly marked maximum due to better heat elimination. The smaller layer thickness slows down LCR within the range of strong supercooling, which is to be ascribed to the action of the surface layers of the glass. Figure 2 contains the results of measurement obtained by studying the slowly crystallizing salipyrine. The measurements carried out indicate that an exact temperature dependence of LCR can be determined only by measuring the growth velocity of the individual grains in flat preparations of different layer thickness. B. V. Stark, I. L. Mirkin, A. V. Romanskiy, Gustav Tamman, R. Ya. Berlaga, F. K. Gorskiy, V. I. Danilov, and Ya. S. Umanskiy are mentioned in this paper. There are 2 figures and 5 Soviet references.

ASSOCIATION: Polotskiy pedagogicheskiy institut (Polotsk Pedagogical Institute)

SUBMITTED: November 22, 1956

Card 2/2

24.1900 1063 2209 1160

S/170/61/004/004/014/014
B125/B203

AUTHOR: Meleshko, L. O.

TITLE: Crystallization of an undercooled liquid in an ultrasonic wave field

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 4, 1961, 123-125

TEXT: The present paper reports on experimental studies of the effect of ultrasonic waves on the kinetics of crystallization of undercooled betol (melting point 94.5°C) at different fusion temperatures, and on the rate of formation of crystallization centers. The methods of studying crystallization kinetics without an ultrasonic field effect had been described in a previous paper by L. O. Meleshko (IFZh, II, no. 9, 1959). In the present case, the cuvette with the solution of the substance to be studied was placed in a tank in the upper layer of transformer oil. A quartz plate in this oil emitted ultrasonic waves. The ultrasonic source was a "ХИРАНА" ("KhIRANA") apparatus (400 w), a piezoelectrically operating, stationary device with a consumption of 1.3 kw and an ultrasonic frequency of 1 Mc ± 10%. The photocell above the plate was connected

Crystallization of an...

to a bridge circuit. If the interface crystal - melt is smooth without ultrasonic waves, numerous new centers are formed before the interface when the ultrasonic field is applied. Then, these new centers join the growing crystals, and displace quickly the front of crystallization. When an ultrasonic field is applied, the crystallization time of a certain part of the parent phase decreases from 22 to 5.6 min. A similar law holds for other undercoolings. Under given conditions, the effect of the ultrasonic field was reduced to a dispersive effect. The experiment showed that the effect of ultra-sound was not limited to the transformation of part of the growing crystals into new centers, but it also influenced the appearance of nuclei of the new phase in the melt. To study the effect of ultrasonic waves on the rate of formation of crystallization centers (Fig.1, Curves 2,3), the substance was molten, quickly cooled to a certain temperature t_e (exposure temperature), and maintained at it for 2-3 min. Studies were conducted at different exposure temperatures between -10 and +15°C. After exposure, the preparation was always quickly heated to +25°C (development temperature), and the kinetic curves for the transformation process were plotted under these conditions. In the

Card 2/5

experiments discussed here, the total transformation rate depended greatly on the number of nuclei of the new phase appearing at the exposure temperature. In one experiment, the preparation to be studied was exposed to ultrasonic radiation, in the second one, it was not exposed while other conditions were maintained. In both cases, the preparation was developed at 25°C without irradiation. An analysis of the experimental results (Fig. 1, Curves 2,3) shows: Depending on the degree of undercooling of the melt, the ultrasonic field may act differently on the rate of production of nuclei. In undercooling below the optimum velocity of crystallization centers, the ultrasonic field accelerates the nuclear action (Curves 2), while at temperatures below the optimum, it retards it (Curves 3). Under the action of ultra-sound, the temperature curve of crystallization shifts toward lower temperatures, which is in full agreement with F. K. Gorskiy's experiment. This character of change in the formation of nuclei is explained with a reduction in viscosity and activation energy of the melt under the action of ultra-sound, and with the increase in perimetric and superficial energy at the interface crystal-melt. There are 1 figure and 6 Soviet-bloc references.

Crystallization of an...

ASSOCIATION: Institut stroitel'stva i arkhitektury AN BSSR, g.Minsk
(Institute of Building and Architecture of the
AS Belorusskaya SSR, Minsk)

SUBMITTED: March 28, 1960

Card 4/5

MELESHKO, L.O.

Investigation of phase transformations in pores of building materials [with summary in English]. Inzh.-fiz. zhur. 4 no. 9:61-66 S '61. (MIRA 14:8)

1. Institut stroitel'stva i arkhitektury AN BSSR, g. Minsk.
(Building materials--Testing) (Freezing points)

27560
S/170/61/004/010/015/019
B108/B102

24.7400 (1153, 1160)

AUTHOR: Meleshko, L. O.

TITLE: The formation of nuclei of a new phase

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 10, 1961, 115-118

TEXT: The rate at which crystallization nuclei arise in a supercooled liquid is given by the formula $J = K \exp\left[-U/RT - A/T(\Delta T)^2\right]$ (1). U denotes the activation energy, ΔT - supercooling, K - a kinetic factor, A - a quantity depending on the shape of the nuclei, the physical properties of the medium, and on the surface energy on the boundary between crystal and liquid. The author determined the parameters A and K for naphthalol. The temperature dependence of the activation energy is obtained as $U(T) = 6.398 \cdot 10^{-3} RT\exp(2281/T)$ (2). The parameter A was determined from a $(\ln J + U/RT)$-versus-$(1/T(\Delta T)^2)$ graph. The value for J was taken from an earlier paper, A was found to amount to $1.1987 \cdot 10^8$. With the help of the

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The formation of nuclei of a new phase

quantities known so far K was found from formula (1) for various temperatures. The formula $A = \frac{\chi v^2 \sigma^3 T_o^2}{2k\lambda^2}$ (3) is given. χ is a form factor (equal to $16\pi/3$ for a sphere, and 32 for a cube), v is the volume referred to one molecule, σ - the surface tension between solid and liquid phase, T_o - conversion temperature at equilibrium, k - Boltzmann's constant, λ - heat of fusion referred to one molecule. From formula (3), σ is found to be $(6.71 \cdot 10^{-48} A/v^2)^{1/3}$ when spherical condensation nuclei are assumed. $v = M/\rho N$ where M stands for the molecular weight, ρ is the density of the nucleus, and N is Avogadro's number. The critical size of the nuclei, i. e., the size below which a nucleus is not able to grow into a crystal, is calculated. The critical radius of three-dimensional spherical nuclei is $r_3 = \frac{2\sigma M T_o}{\rho N \lambda \Delta T}$. The number of molecules in a three-dimensional nucleus of critical size can be determined from the expression $n_3 = \frac{4}{3}\pi r_3^3/v$. The

The formation of nuclei of a new phase

critical radius of a two-dimensional nucleus and the number of molecules in it are determined from the expressions $r_2 = \frac{\xi T_o}{\lambda n_1 T}$ and $n_2 = \frac{r_2^2}{S}$. Therein, $n_1 = 1/S$ denotes the number of molecules per unit area on the grain surface, $\xi = d$ - the perimetric energy; d - the thickness of a monomolecular layer; S - area ascribed to one molecule. The results of the calculations are compiled in the Tables 1 and 2. There are 1 figure , 2 tables, and 2 Soviet-bloc references.

ASSOCIATION: Institut stroitel'stva i arkhitektury AN BSSR, g. Minsk (Institute of Construction and Architecture of the AS Belorusskaya SSR, Minsk)

SUBMITTED: June 23, 1961

L 18447-63 EPF(c)/EWT(1)/EWT(m)/BDS AFFTC/ASD/ESD-3/LJP(C) Pr-4
ACCESSION NR: AT3001894 RM/MAY/WW S/2912/62/000/000/0061/0066

65

AUTHOR: Meleshko, L. O.

TITLE: Mechanism of the nucleation process of a new phase in supercooled liquids

SOURCE: Kristallizatsiya i fazovy*ye perekhody*. Minsk, Izd-vo AN BSSR, 1962, 61-66

TOPIC TAGS: crystal, crystallization, crystallography, nucleus, nucleation, liquid, supercooled, naphthalol

ABSTRACT: The paper reports the results of experimentation intended to clarify the problem of whether or not crystallization is dependent on impurities and to ascertain the character and degree of activity of impurities. For this purpose tests were made with transformation processes in supercooled naphthalol. This substance was selected because it has a fairly small linear rate of crystallization (LRC) in the temperature (T) range in which new-phase nuclei form in large quantities. The details of the specimens and procedure were previously described by the author in ZhFKh, v. 34, no. 1, 1960, and IFZh, v. 2, no. 9, 1959, 69. The specimens were placed between two plane-parallel vessels with thermostatically

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controlled liquid circulation. The vessels were placed on one of the two photoelectric elements of the instrument. A light beam, divided in two by a prism and reflected by two 45° mirrors, passed through the specimen along one branch and through air along the other branch. Readings were made by balancing the two circuits. The use of a single primary light beam eliminates the effects of network voltage fluctuations and minimizes the errors due to decay of the photoelements. The specimen was heated by passing boiling water through one of the contact vessels for 10 min. Both vessels were then connected to the 0°C thermostat, and the fused specimen substance was held at that T for 1, 2, 3, 5, 10, 15, 20, 30, and 40 min. After each hold it was then rapidly heated to 20°C by a change-over of the hose connections to a second thermostat. Kinetic curves were recorded under those conditions. The transmission of light through the specimen was measured every 30 sec. This was repeated for each of the initial holding times of the specimen. Inasmuch as the LRC at a given degree of supercooling is constant, the total rate of transformation under the given conditions of investigation were determined by the number of new-phase nuclei appearing at the initial exposure T with different holding times, since the probability of the appearance of new crystallization nuclei at a 20°C T in supercooled naphthalol is extremely small. The results of the investigation show that in supercooled naphthalol new-phase nuclei arise primarily at the beginning of the process of transformation, a fact that can

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ACCESSION NR: AT3001894

be attributed to the effect of impurities on the crystallization. Hence, in the naphthalol fusion, the centers of crystallization arise primarily because of the fluctuational mechanism on the impurities. Upon exhaustion of extant active impurities the further nucleation process can proceed spontaneously, but, of course, with a much lower probability. Orig. art. has 4 figures.

ASSOCIATION: none

SUBMITTED:	00	DATE ACQ:	16Apr63	ENCL:	00
SUB CODE:	CH, PH, MA.	NO REF SOV:	006	OTHER:	001

Card3/3

L 18446-63 EWT(1)/BDS AFFTC/ASD/ESD-3/IJP(C) S/2912/62/000/000/0066/0070
ACCESSION NR: AT3001895

55

AUTHOR: Meleshko, L. O.

TITLE: Determination of the temperature dependence of the energy of activation of the growth of a new phase

SOURCE: Kristallizatsiya i fazovy*ye perekhody*. Minsk, Izd-vo AN BSSR, 1962, 66-70

TOPIC TAGS: crystal, crystallization, crystallography, phase, transformation, change, activation, energy, growth, nucleus, nucleation, temperature, phenyl-salicylate

ABSTRACT: This paper provides a calculation method for the determination of the temperature (T) dependence of the energy of activation (EA) of the growth of a crystalline phase from a liquid phase. It is reasoned that in the transition from one equilibrium position to another a molecule must pass between structural elements of a body where its energy will be elevated. When as a result of fluctuation the energy of the thermal motion exceeds the energy of the intermolecular bond, a particle passes through the activation barrier from one equilibrium state to another. Thus, the rate of phase transformation depends substantially on the magnitude of

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L 18446-63
ACCESSION NR: AT3001895 0

the EA. The author relies on the drop-off of the linear rate of crystallization (LRC) curve, v=v(t), at elevated degrees of supercooling (sample substance: phenylsalicylate) and calculates the T dependence of the EA of the molecules therefrom. He plots the log v vs. 1/t curve, finds its slope graphically, and plots the value of the slope versus log v, which forms a straight line. Hence, the slope can be expressed as $-a+b\cdot\log v$, where a and b are constants. Integrating this expression an equation is obtained for v. Equating this expression for v with that obtained from the theoretical equation of the LRC of the new phase, an expression is ultimately obtained for U. It is found that with a reduction in T of the fusion, the EA increases. This character of the T dependence of the EA is explained by the formation of new intermolecular bonds with an increase in supercooling. The effect of large and small values of the mobility of the molecules (that is, the EA) on the behavior of various types of molecules is elaborated. Analytical means are now available for the determination of the limiting tension along the perimeter of two-dimensional nuclei and the dimensions of critical nuclei for various supercooled fusions. Orig. art. has 3 figures and 16 numbered equations.

ASSOCIATION: none

SUBMITTED:	00	DATE ACQ:	16Apr63	ENCL:	00
SUB CODE:	CH, PH, MA.	NO REF SOV:	000	OTHER:	000

Card 2/2

L 18908-63 EWP(j)/EPF(c)/EWT(m)/EWP(q)/BDS/ES(s)-2 AFFTC/ASD
Pc-4/Pr-4/Pt-4 RM/WW/JD/MAY/JG

ACCESSION NR: AT3001905 S/2912/62/000/000/0128/0133

76

AUTHOR: Meleshko, L. O.

TITLE: The kinetics of the crystallization of alloys of the eutectic type 18

SOURCE: Kristallizatsiya i fazovyye perekhody*. Minsk, Izd-vo AN BSSR, 1962, 128-133.

TOPIC TAGS: crystal, crystallization, crystallography, kinetics, eutectic, naphthalene, salol, rate of crystallization

ABSTRACT: The paper describes an experimental investigation of the kinetics of the crystallization of a eutectic mixture of salol (SL) and naphthalol (NL), the components of which do not form a solid solution. The eutectic contains 22% NL and 78% SL; m. p. of NL 94.5°C, of SL 41.0°, of the eutectic mixture 32.5°. Both substances are thoroughly known. The probability of crystallization-center formation in supercooled SL is very small, and the linear rate of crystallization (LRC) at optimal temperature (T) approximates 4 mm/min. In a NL fusion the probability of nucleation at T near −4°C is very great; the LRC at optimal supercooling is 1.5 mm/min. Below equilibrium T, the fusion is supercooled with respect to both components, more so with respect to the NL than to the SL. At the equilibrium T,

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L 18908-63

ACCESSION NR: AT3001905

the nucleus formation of a new phase of both NL and SL is, therefore, thermodynamically possible. The experimentation achieved a measurement of the work of formation of crystalline nuclei, the concentrational fluctuation, the energy of activation, and the magnitude of the pre-exponential coefficient. The investigation was made by means of the polarized-light microscope. The investigation of the kinetics of the crystallization of the eutectic mixture of NL-SL was performed according to the method previously published by the author (IFZh, v.2, no. 9, 1959). The thickness of the test specimen was 0.7 mm, that is, twice as great as in previous experiments. The curves plotted are for the percent of transformed phase, S, as a function of time for various degrees of supercooling of the mixture, also the temperature dependence of the total rate of transformation. The slope of the S-vs.-time curves depends on the degree of supercooling, becoming steeper with increasing supercooling, until a temperature of 2.5°C is attained; thereupon continuing to decrease with greater degrees of supercooling. This character of the temperature dependence of the total rate of transformation is explained by the conditions of the formation and growth in the eutectic fusion of germs of the new phase. This reasoning is analyzed and explained in further detail, and a theoretical calculation method is presented. Orig. art. contains 3 figs. and 13 numbered equations.

ASSOCIATION: 00

SUBMITTED:	00	DATE ACQ:	16Apr63	ENCL:	00
SUB CODE:	CH, PH, MA.	NO REF SOV:	001	OTHER:	001

Card 2/2

MELESHKO, L.O.

Determination of the temperature dependence of water activation energy. Krist. zhid. no.2:48-52 '63.

Phase transitions in porous materials of granular structure. Krist.zhid. no.2:53-57 '63. (MIRA 17:7)

MELESHKO, L.O.

Determination of the temperature dependence of the rate of generation of crystallization centers. Zhur. fiz. khim. 38 no.6:1627-1631 Je '64. (MIRA 18:3)

1. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

SAKHRIN, M.G.; KRYKH, B.V.; MELESHKO, M.I.

Results of laboratory investigations and field tests of cement-clay mixtures. Trudy UkrNIGRI no.7:109-125 '63.
(MIRA 19:1)

MELESHKO, F. E.

"Amorphous Hydrates of Ferric Oxides." Thesis for degree of Cand. Chemical Sci. Sub 14 Sep 49, Inst of General and Inorganic Chemistry imeni N. S. Kurnakov, Acad Sci USSR

[redacted] Summary 82, 18 Dec 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

MELESHKO, P. S.

Dehydration and rehydration in the system iron oxide-water. P. T. Danil'chenko, and P. S. Meleshko. *Trudy Krym. Filiala Akad. Nauk S.S.S.R.* 4, No. 1, 3-12 (1953). — The object of the expts. described was the reinvestigation of the compn. of amorphous hydrates of iron oxide obtained by pptn. from iron chloride by ammonia. The method of investigation (based on the irreversibility of the process of dehydration of hydrogels) consisted in heating the hydrogel of iron oxide at the surface of sepn. solid-liquid, and in detg. (after cooling) the amt. of chemically fixed water in the products of rehydration. Fe_2O_3 forms 5 hydrates of the type $2Fe_2O_3.nH_2O$, where $n = 1, 2, 3, 4$, and 5. Only the monohydrate is stable; it dehydrates at 240°. The others are metastable; they loose their water of hydration at room temp., passing into the stable form. The hydrate $Fe_2O_3.2.5H_2O$ passes consecutively through $Fe_2O_3.2H_2O$ and $Fe_2O_3.1.5H_2O$. The "half hydrate" however is formed not during the process of dehydration of the monohydrate but during the rehydration of Fe_2O_3. When the monohydrate is dehydrated below 340° the Fe_2O_3 obtained is active: it can fix water to form a half hydrate. It loses this capacity when dehydrated at higher temps. The monohydrate can also exist in the active and inactive states. N. Goldowski

AUTHOR: Meleshko, P.S. SOV/69-20 6-9/15

TITLE: Determination of the Adsorption Value of Dissolved Substances on Hydrogel (Opredeleniye velichiny adsorbtsii rastvorennykh veshchestv na gidrogele)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol 20 , Nr 6, pp 728-735 (USSR)

ABSTRACT: The adsorption value of a dissolved substance on colloidal hydrate may be determined in two ways: by analysis of the mixture of the liquid and the solid phase and the solution in equilibrium, or by determining the concentration of the adsorbed substance in the solution before and after the immersion of the adsorbent. Formulae are given for this method. If there are several components in the solution, the determination of the adsorption value is very difficult. An exclusion method has been proposed in which one component is excluded from the solution and transferred into a system of adsorbent water-solute. The concentration of every component is determined individually. The same method may be applied in the case of many components. The adsorption value may be found graphically. From the measured data a diagram by Rooseboom [Ref 4] is drawn (Figures 1-3). The graphic method may also be used for solutions of several components

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SOV/69-20-6-9/15

Determination of the Adsorption Value of Dissolved Substances on Hydrogel

(Figures 4 and 5).
There are 5 diagrams and 4 references, 2 of which are Soviet and 2 German

ASSOCIATION: Krymskiy meditsinskiy institut imeni I.V. Stalina, Kafedra obshchey khimii (Crimean Medical Institute imeni I.V. Stalin, Chair of General Chemistry)

SUBMITTED: April 24, 1957

1. Hydrates--Adsorption 2. Adsorbents--Performance 3. Solutions --Properties

Card 2/2

5(2)

AUTHOR: Meleshko, P. S. SOV/20-124-5-30/62

TITLE: On a Higher Hydrate of Iron Oxide (O vysshem gidrate okisi zheleza)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 5, pp 1071-1072 (USSR)

ABSTRACT: In the comprehensive literature on the composition of colloidal iron hydroxide there are numerous references to the existence of higher hydrates (having 3-9 molecules water per 2 molecules iron). A critical consideration of these results has led to doubts because the methods adopted for investigation were unsatisfactory (Refs 1-10). The amount of water chemically combined in a colloidal hydrate can be definitely determined by the "third component" method (Ref 11). According to this method a gel after long standing shows a composition $2Fe_2O_3 \cdot H_2O$ for the monohydrate (Ref 12). Fresh precipitates contained $2Fe_2O_3 \cdot 5H_2O$, $Fe_2O_3 \cdot 2H_2O$, and $2Fe_2O_3 \cdot 3H_2O$, all unstable compounds which are dehydrated to the stable monohydrate at normal temperature. Whereas in the textbooks the composition of the iron hydroxyde has been stated for a long time as

Card 1/3

$Fe(OH)_3$ ($Fe_2O_3 \cdot 3H_2O$) it had, perhaps because of its extreme instability, not yet been possible to prove the existence of such hydrate. To avoid a decomposition of freshly precipitated colloidal hydroxide the method (Ref 13) was modified by reducing as much as possible the temperature at which the hydrogel was formed and investigated (down to 1-2°), as well as the time until the analysis was made. For the latter purpose, ammonium chloride was used as the third component; this eliminated the need for watering through 20 days. Table 1 and figure 1 show the results. To obtain more exact data on the composition of the hydrate it was calculated too (Refs 11,13). It was possible to show that the analytical results for the system Fe_2O_3-H_2O-NH_4Cl are in good agreement with those obtained graphically. Taking the inevitable errors into account the existence of the trihydrate of iron oxide and the conditions for its existence can be considered proven. There are 1 figure, 1 table, and 14 references, 5 of which are Soviet.

On a Higher Hydrate of Iron Oxide SOV/20-124-5-30/62

ASSOCIATION: Krymskiy gosudarstvennyy meditsinskiy institut im. I. V. Stalina, g. Simferopol' (Krym State Medical Institute imeni I. V. Stalin, City of Simferopol')

PRESENTED: October 25, 1958, by I. I. Chernyayev, Academician

SUBMITTED: October 21, 1958

Card 3/3

MELESHKO, P.S.

Adsorption in the system Fe_2O_3 - H_2O - $CaCl_2$ - NaCl. Koll.zhur. 23 no.6:726-731 N-D '61. (MIRA 14:12)

1. Krymskiy meditsinskiy institut imeni I.V.Stalina, kafedra obshchey khimii, Simferopol'.
(Systems (Chemistry)) (Adsorption)

MELESHKO, P. S.

Adsorption in the system Fe_2O_3 - H_2O - $MgSO_4$ - $MgCl_2$.
Koll. zhur. 24 no.6:721-723 N-D '62. (MIRA 16:1)

1. Krymskiy meditsinskiy institut, kafedra obshchey khimii, Simferopol'.

(Magnesium salts) (Adsorption)
(Iron hydroxides)

RYAKHOVSKIY, V.; RAGIMOV, Z., kand. biolog. nauk; SULEYMANOV, S., mladshiy nauchnyy sotrudnik; SHVETSOVA, A., dotsent; SEMENOV, A., assistent; GROMOVA, A., kand. biolog. nauk; SELIN, I., nauchnyy sotrudnik; LAZHAUNIKAS, Ye.; MELESHKO, R.; PREOBRAZHENSKIY, V., starshiy prepodavatel'

To the attention of a plant protector. Zashch. rast. ot vred. i bol. 10 no.6:40-43 '65. (MIRA 18:7)

1. Zaveduyushchiy otdelom zashchity rasteniy Luganskoy sel'skokhozyaystvennoy opytnoy stantsii (for Ryakhovskiy). 2. Azerbaydzhanskiy nauchno-issledovatel'skiy institut zashchity rasteniy, Kirovabad (for Ragimov, Suleymanov). 3. Omskiy sel'skokhozyaystvennyy institut (for Shvetsova, Semenov). 4. Otdel zashchity rasteniy Smolenskoy sel'skokhozyaystvennoy opytnoy stantsii (for Selin). 5. Zaveduyushchiy Tel'manskim punktom signalizatsii i prognozov, Karagandinskaya oblast' (for Lazhaunikas). 6. Zaveduyushchaya Vitebskim punktom signalizatsii i prognozov (for Meleshko). 7. Buryatskiy sel'skokhozyaystvennyy institut (for Preobrazhenskiy.

KELESHKO, S.D., kandidat biologicheskikh nauk.

Formation of conditioned reflexes in birds. Est.v shkole no.1: 39-42 Ja-F '56. (MLRA 9:5)

1. Kaluzhskiy pedagogicheskiy institut.
(Conditioned response) (Birds--Physiology)

EXCERPTA MEDICA Sec 2 Vol 12/5 Physiology May 59

1882. MECHANISMS OF INTERACTION OF THE CORTICAL SIGNAL SYSTEMS (Russian text) - Meleshko S. D. Lab. of the Higher Nerv. Activity, Pedagog. Inst., Kaluga - ZH. VYSSH. NERV. DEYAT. 1958, 8/3 (353-357) Tables 1

The investigation was carried out on 4 third-form schoolchildren by the motor method with speech reinforcements. The children were of the equilibrated and mobile nervous-system type both in the first and the second signal systems. Interaction of the signal systems was achieved not only by means of mutual elective irradiation of excitation and inhibition from one signal system to the other and induction between them, but also by developing internal inhibition in one of the signal systems. The investigation leads to the conclusion that the development of internal inhibition in conditioned connections or their complexes, which combine the first and second signal systems, plays an important part in the higher nervous activity of man.

MELESHKO, S.D.

Typological characteristics of speech activity in young school children. Zhur. vys. nerv. deiat 10 no. 4:541-546 Jl-Ag '60. (MIRA 14:2)

1. Laboratory of Higher Nervous Activity, Kaluga Pedagogical Institute.
(TEMPERAMENT) (SPEECH)

MELESHKO, T.K.

Variation of the methodology for studying the process of comparison in schizophrenics. Trudy Gos. nauch.-issl. inst. psikh. 43:288-294 '65. (MIRA 18:9)

1. Institut psikhiatrii AMN SSSR (direktor - prof. A.V.Snezhnevskiy).

MELESHKO, T.K.

Characteristics of the process of comparison in schizophrenics. Zhur.nevr. i psikh. 66 no.1:109-115 '66.

(MIRA 19:1)

1. Laboratoriya patopsikhologii (zaveduyushchiy Yu.F.Polyakov) Instituta psikhiatrii AMN SSSR, Moskva. Submitted November 28, 1964.

MELESHKO, V., kand.geograf.nauk, starshiy nauchnyy sotrudnik

Ice-breaker operations in the Gulf of Finland. Mor.flot 23 no.2:22-23 F '63. (MIRA 16:2)

1. Arkticheskiy i Antarkticheskiy nauchno-issledovatel'skiy institut.
(Finland, Gulf of--Ice-breaking vessels)

MELESHKO, V. G.

"Ontophylogenesis of the Ovaries of Mammals." Cand Biol Sci, Irkutsk Medical Inst, Irkutsk, 1954. (RZhBiol, No 7, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

MELESHKO, V. I.

PA32/49T73

USSR/Mining Methods Oct 48
Mining Equipment

"Ferroconcrete Propping for Large-Output Mines in Ukrainian Lignite Fields," V. I. Meleshko, Engr, 1 3/4 pp

"Ugol'" No 10

Describes system used at mine in Aleksandriyskiy Rayon, with four sketches.

[redacted] 32/49T73

MELESHKO, V.I.

137-1958-1-582

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 91 (USSR)

AUTHOR: Meleshko, V.I.

TITLE: Pressure of the Metal on the Rolls in Blooming Mills (Davlen.ye metalla na valki pri prokatke v blyumingakh)

PERIODICAL: Tr. nauchno-tekh. o-va chernoy metallurgii. Ukr. resp.pravl., 1956, Vol 1, pp 92-97

ABSTRACT: When an ingot of large cross-section is deformed in a blooming mill, the theoretical formulas do not provide results of sufficient accuracy in calculating the pressure of the metal on the rolls. Measurement of the pressure of the metal on the rolls in rolling various steels in the 1150-mm blooming mill of the Dzerzhinskiy Works leads to the conclusion that results obtained from A.I.Tselikov's equation do not agree with the experimental data. This is explained by the difference in the stress diagrams employed in developing the formula and the actual patterns occurring in blooming mills. It is shown that a change in the ratio of the length of the deformation area to the mean thickness of the ingot significantly affects the magnitude of the specific pressure.

S.G.

Card 1/1

1. Rolling mills--Operation--Theory 2. Metals--Processing

SOV/137-57-1-597

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 79 (USSR)

AUTHORS: Chekmarev, A. P., Meleshko, V. I.

TITLE: Improved Roll-pass Design for Rolling of Rounds on Rolling Mills for Light Sections (Ratsional'naya kalibrovka dlya prokatki krugov na melkosortnykh stanakh)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR, 1956, Vol 10, pp 44-63

ABSTRACT: The novel method proposed for the design of drawing and finishing pass openings of the "oval-square" system utilizes a universal oval-pass design and provides for the selection of the desired drawing ratio on the basis of the greatest permissible angle of bite ensuring full utilization of the gripping capacity of the rolls. The permissible angles of bite are related to the speeds of rolling. An example illustrating the design of passes in accordance with the method proposed is presented.

V. Zh.

Card 1/1

137-58-1-601

MELESHKO, V. I.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 94 (USSR)

AUTHORS: Chekmarev, A. P., Meleshko, V. I.

TITLE: Stresses During the Rolling of Sheets of Carbon and Alloy Steel on a Lauta Three-high Mill (Usiliya pri prokatke listov iz uglerodistoy i legirovannoy staley na stane trio Lauta)

PERIODICAL: Tr. In-ta chernoy metallurgii, AN UkSSR, 1957, Vol 11, pp 115-124

ABSTRACT: An analysis of values experimentally obtained for the full pressure of the metal on the rolls (R) of a 3-high Lauta sheet mill with 750/550/750 mm R diameters and 2200 mm body length makes it possible to judge the stresses in R on rolling and the rationality of the distribution of reductions among the passes, and indicates the need to redistribute reductions so as to reduce the load on the intermediate passes. A formula is presented for the determination of a nominal radius of mills with R of unequal diameter when rolling is accompanied by elastic flattening of the R's. Curves for the relationship between the unit pressure and the thickness of the billet are presented in terms of the rolling temperatures investigated. Data derived

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137-58-1-601

Stresses During the Rolling of Sheets of Carbon (cont.)

may be used in analysis of equipment for sheet mills and in designing reduction procedures.

V.D.

1. Rolling mills—Stresses 2. Rolling mills—Characteristics

Card 2/2

MELESHKO, V.I.

137-58-2-2850

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 93 (USSR)

AUTHORS: Chekmarev, A.P., Meleshko, V.I.

TITLE: An "Inverted-oval Strip" Drawing-groove system (Sistema vytyazhnykh kalibrov "polosa - obrashchennyy oval")

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR, 1957, Vol 11, pp 130-142

ABSTRACT: The development of the "incomplete-square strip" drawing-groove system now makes it possible to propose for adoption by industry a new "inverted-oval strip" system. This is the best system so far as the automatic turning of the strip in the smooth rolls is concerned. It guarantees reliable guiding-device performance on both sides of the mill, thus making possible the full automation of the rolling process and of its guiding devices. Included are methods and an example of a design calculation of grooves for an "inverted-oval strip" system, also the results of experimental rolling done with such a system.

V.D.

1. Rolling mills—Applications 2. Materials—Handling—Automation

Card 1/1

MELESHKO, V.I.

137-1958-2-2774

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 81 (USSR)

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I., Chekhranov, V.D., Vorotyntsev, Yu.V., Shafran, I.K.

TITLE: A Study of an 1150-millimeter Blooming Mill (Issledovaniye blyuminga 1150 mm)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR 1957, Vol 11, pp 152-174

ABSTRACT: A comprehensive investigation of the performance of an 1150-millimeter blooming mill showed that the actual amount of widening that occurs in the rolling of blooms and slabs is significantly greater than the customary calculations would indicate. This error in computation of the widening led to a faulty distribution of the reduction during each of the rolling passes. Measuring the pressure of the metal on the rolls and the current in the armature of the motor revealed the availability of reserve power, which could be used to increase the reduction in a given pass in the blooming mill. The greatest specific pressure in the rolling of mild and medium-carbon steels was exhibited by killed steel MZ subjected to cold upsetting. Curves of specific power consumption for the rolling

Card 1/2

137-1958-2-2774

A. Study of an 1150-millimeter Blooming Mill

operation included here, should be useful in the planning and control of power use in a blooming mill. Time-and-motion studies showed the extent of and reasons for differences in the duration of passes and of the intervening pauses among various operators and made possible recommendations for cutting down production time and down time in blooming-mill operation.

V.D.

1. Rolling mills—Operation

Card 2/2

Meleshko, V.I.

137-1958-2-2790

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 84 (USSR)

AUTHORS: Klimenko, V.M., Meleshko, V.I., Chekhranov, V.D., Pavlov, V.L., Vorotyntsev, Yu.V., Bortunov, Ye.M., Nazarenko, Kh.N., Shafran, I.K.

TITLE: Increasing Blooming-mill Productivity (Uvelicheniye proizvoditel'nosti blyuminga)

PERIODICAL: Tr.In-ta chernoy metallurgii AN UkrSSR, 1957, Vol 11, pp 175-181

ABSTRACT: A comprehensive investigation of the performance of an 1150 mm blooming mill at the Dzerzhinskiy plant revealed ways in which blooming-mill output capacity could be increased. These required the adoption of certain technical and procedural measures, namely, improving the performance of the clamping gear and of the main power unit, better regulation of the heating of the metal, etc. Once this had been done and the new high-reduction runs had been inaugurated, the rolling operation could be shortened by 4-8 passes and 1-3 turnings, with a simultaneous 150 percent increase of the reduction per smooth roll and 200 percent increase of the reduction per grooved section roll. The quality of the rolling was not impaired, industrial tests showing that the incidence of rejects had declined from 1 percent to 0.6 percent. V.D.

Card 1/1

1. Rolling mills--Production

SOV/137-58-9-18964

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 115 (USSR)

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I.

TITLE: Roll-separating Pressure in Rolling on Blooming Mills (Davleniye metalla na valki pri prokatke na blyumingakh)

PERIODICAL: V sb.: Prokatn. i trub. proiz-vo. Moscow, Metallurgizdat, 1958, pp 92-108

ABSTRACT: Investigations have yielded data on total and specific pressures in the rolling of carbon and alloy steels in a blooming mill. Pressure is measured by special hydraulic capsules, with strain gages. The investigation was carried out on blooming mills at various plants, wherein new pressure-sensitive capsules were made with allowance for the special features of the given mill. A graph of distribution of total roll-separating pressures among the passes in the rolling of steels of various grades is adduced. In order to clarify the possibility of increase in draft in the rolling of hard steels and to create a rational rolling flow sheet from the viewpoint of the stresses in the rolls, an analysis of the flexure under maximum pressures in each grooved roll is made. Graphs of the relationship

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Roll-separating Pressure in Rolling on Blooming Mills

between the mean specific vertical pressures and the magnitude of H/D for steels of the grades under investigation are presented. The nature of these expressions differs from those previously available.

B.Ts.

1. Rolling mills--Pressure distribution 2. Pressure--Measurement 3. Strain gages --Applications 4. Stress analysis

SOV/137-59-3-6759

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 261 (USSR)

AUTHORS: Meleshko, V. I., Safyan, M. M.

TITLE: An Investigation of Power and Efficiency Considerations in a Continuous Hot-strip Mill (Energeticheskoye i silovoye issledovaniya nepreryvnogo tonkolistovogo stana goryachey prokatki)

PERIODICAL: Tr. Mezhvuz. nauchno-tekhn. konferentsii na temu: "Sovrem. dostizh. prokatn. proiz-va". Leningrad, 1958, pp 197-207

ABSTRACT: Experimental data on pressures, torque moments, and the power required for rolling of the continuous thin-strip mill at the "Zaporozhstal'" plant made it possible to locate the weakest links in the mechanisms of the mill and permitted creating a rational process technology. At the instant of gripping of the strip by the rolls, a small peak is observed in the pressure curve; the same condition is observed during the passage of the rear end of the strip through the rolls. Maximum pressure (1950t) is observed in the first roughing stand during rolling of steel of the 3sp grade. Regardless of the grade of steel, the specific pressure increases from the second to the fourth roll stand. Reducing the final thickness by 50% increases

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An Investigation of Power and Efficiency Considerations in a Continuous (cont.)

the pressure by a factor of 1.5-2. At $\ell_d/h_{av}=3.5$ the specific pressure for steels 3sp, 3kp, 08kp, 1Kh18N9T, and 30KhGSA amounts to 20-24, 20-27, 20-27, 44-52, and 29-37 kg/mm^2, respectively. The greatest load is carried by the motors of the first stands of the finishing mill. The consumption of energy in the roughing mill is presented, in the form of curves, as a function of the ratio H/h for structural, alloyed, and stainless steels. The greatest amount of energy is consumed during rolling of stainless steel.

Ya. G.

Card 2/2

CHEKMAREV, A.P., akademik; SAF'YAN, M.M., dotsent; MELESHKO, V.I., kand. tekhn.nauk; TOPOROVSKIY, M.P., inzh.

Experimental investigation of pressure and capacity of roughing stands for continuous sheet metal rolling mills. Izv. vys. ucheb. zav.; chern.met. no.5:115-120 My '58. (MIRA 11:7)

1.AN USSR (for Chekmarev). 2.Dnepropetrovskiy metallurgicheskiy institut i Institut chernoy metallurgii AN USSR.
(Rolling mills)

SOV/133-59-3-17/32

AUTHORS: Chekmarev, A.P., Academician, Ukrainian Academy of Sciences, Meleshko, V.I., Pavlov, V.L., Chekhranov, V.D., Candidates of Technical Sciences and Tsukanov, G.E., Shafran, I.K., Engineers, Ivanin, M.P., Senior Operator

TITLE: Rolling of Twin Ingots on a 1150 Blooming Mill (Prokatka sdvoyennykh slitkov na bluminge 1150)

PERIODICAL: Stal', 1959, Nr 3, pp 243 - 247 (USSR)

ABSTRACT: A rolling practice of rolling two ingots (in line one after the other) into blooms and slabs introduced at the Dzerzhinskiy Works at the end of 1957 is described. Changes in the roll passes made in 1958 are shown in Figures 1 and 2; characteristic dimensions and weights of rolled ingots - Table 1; rolling conditions during simultaneous rolling of two ingots into blooms - Table 2 and into slabs - Table 3. The operation of the mill under the above rolling conditions was investigated in co-operation with the Iron and Steel Institute of the Ac.Sc.Ukrainian SSR. Examples of the oscillographs obtained, indices of the loads and rolling velocities on rolling single and twin ingots are shown in Figures 4 and 5 and Tables 4 and 5, respectively. The experience of this type of rolling practice indicated that it is advantageous tc apply it on all blooming mills as a

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SOV/133-59-3-17/32

Rolling of Twin Ingots on a 1150 Blooming Mill

15-30% increase in the output (depending on the type of ingot and dimensions of blooms and slabs) can be obtained. This increase is mainly due to a decrease in the idling time. By maintaining correct rolling velocities the occurrence of shocks in the main mill line (when the grip of the second ingot takes place during the retardation of the motor) can be avoided. When introducing twin-ingot rolling in existing mills, it is necessary to introduce protective measures from overloading of asynchronous and rolling motors according to heating conditions. When designing new mills or reconstructing an existing mill, the possibility of rolling twin ingots should be taken into consideration. For this purpose, an increase in the power of motors and an increase in the length of the manipulator is necessary. There are 5 figures and 5 tables.

ASSOCIATIONS: Institut chernoy metallurgii AN USSR (Institute Ferrous Metallurgy, AS UkSSR) and zavod im. Dzerzhinskogo (im. Dzerzhinskiy Works)

Card 2/2

S/137/61/000/006/032/092
A006/A101

AUTHORS: Chekmarev, A.P., Meleshko, V.I., Saf'yan, M.M.

TITLE: Experimental determination of the power and moments of rolling in the finishing group of a continuous thin-sheet 1680 mill

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 3, abstract 6D18 ("Nauchn. Dnepropetr. metallurg. in-t", 1960, no. 30, 293-310)

TEXT: The authors present methods and results of determining the power and moments of rolling on the stands of a finishing group of a hot rolling 1680 mill. The data were obtained from oscillograms made with a 8-loop МПО-2 (MPO-2) oscillograph, recording the current intensity in the rotors of the drive motors, the voltage on the rotor terminals and the number of revolutions of the working rolls during rolling of the basic assortments of the mill. As a result of the investigation it was established that 1) by measuring the current intensity of the main motor drives, the tension of the strip between the stands of the finishing group can be established; 2) the magnitude of the moment of rolling can be determined from the oscillogram of currents, voltage and the number of revolutions by taking into account the tension; 3) the experimental data submitted

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Experimental determination ...

make it possible to calculate the motor load when projecting rolling conditions for some carbon and alloyed steels on the investigated 1680 mill; 4) it follows from the analysis of experimental results that the distribution of load of the main drive motors assures, as a rule, maximum utilization of the metal ductility and correct outline of the strip; 5) rolling moments and, consequently, all the energy parameters of the new reduction conditions, can be calculated from experimental values of the coefficient of the arm of moment and specific pressure.

T. Davydov

[Abstracter's note: Complete translation]

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S/137/61/000/006/031/092
A006/A101

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I., Saf'yan, M.M., Chekhranov, V.D., Rabinovich, S.N.

TITLE: Pressure on rolls in rolling on a slab mill

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 6, 1961, 3, abstract 6D13 ("Nauchn. tr. Dnepropetr. metallurg. in-t", 1960, no. 39, 93 - 103)

TEXT: The authors describe methods and results of investigating the pressure of metal on horizontal and vertical rolls of a slab mill at the "Zaporozhstal'" Plant. The investigation was carried out in 1954. The pressure on the rolls was measured with the aid of dynamometers. The results and data obtained from the rolling of soft-grade and stainless steel slabs show, that the magnitudes of full pressure on the horizontal rolls are relatively uniformly distributed over the passes. Maximum pressure when rolling stainless steel is 1,350 - 1,450 tons, and 900 - 1,400 tons when rolling soft steels. The distribution of pressure over the passes on vertical rolls without resetting them, is non-uniform; pressure is considerably higher in even passes than in odd ones. In rolling

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S/137/61/000/006/031/092
A006/A101

Pressure on rolls in rolling on a slab mill

with resetting of vertical rolls, the distribution of pressure over the passes is relatively uniform. Maximum pressure is 300 - 350 tons on soft steels and 700 - 750 tons on stainless steels.

T. Davydov

[Abstracter's note: Complete translation]

Card 2/2

S/123/61/000/014/031/045
A004/A101

AUTHORS: Chekmarev, A.P., Meleshko, V.I., Saf'yan, M.M.

TITLE: Experimental determination of the power and moments of rolling in the finish train of the 1680 continuous sheet rolling mill

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 14, 1961, 21-22, abstract 14V133 ("Nauchn. tr. Dnepropetr. metallurg. in-t", 1960, no. 39, 293 - 310)

TEXT: The authors describe the method and the results of determining the power and moments in the stands of the finish train of the 1680 hot-rolling sheet mill, obtained by oscillographing, with the aid of an МПО -2 (MPO-2) eight-loop oscillograph, the current magnitude in the rotor of the driving electromotor, voltage on the rotor terminals, and the number of revolutions of the work rolls during the rolling by the mill of the main types and sizes. As a result of the investigations carried out it was found that: 1) by measuring the current magnitude of the main drive motors it is possible to establish the presence of strip tension between the stands of the finish train; 2) the magnitude of the rolling moment can be determined by an oscillogram of the currents, voltage and number of

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Experimental determination ...

revolutions taking into account the tension; 3) the presented test data make it possible to obtain by calculation the motor loads during the planning of the rolling conditions for some carbon and alloyed steels on the investigated 1680 mill; 4) it follows from the analysis of the experimental data that the load distribution of the main drive motors ensures, as a rule, the maximum utilization of the metal ductility and the correct strip profile; 5) it is possible to calculate the rolling moments and, subsequently, all energy parameters of the new reduction conditions on the basis of the experimental values of the coefficient of the arm of the moment and specific pressure.

G. Davydov

[Abstracter's note: Complete translation]

Card 2/2

CHEKMAREV, A.P., akademik; MELESHKO, V.I., kand.tekhn.nauk; PAVLOV, V.L., kand.tekhn.nauk; CHEKHRANOV, V.D., kand.tekhn.nauk; KARPUNIN, A.M., inzh.; CHEPELEV, P.M., inzh.

New roughing conditions on 950 blooming mills. Trudy Inst. chern. met. AN URSR 15:189-199 '61. (MIRA 15:2)

1. Akademiya nauk USSR (for Chekmarev).
(Rolling mills)

CHEKMAREV, A.P., akademik; MELESHKO, V.I., kand.tekhn.nauk; PAVLOV, V.L., kand.tekhn.nauk; CHEKHRANOV, V.D., kand.tekhn.nauk; GALATOV, N.S., inzh.; LIKHORADOV, A.P., inzh.

Blooming mill operations with individual roll drives. Trudy Inst. chern. met. AN URSR 15:177-188 '61. (MIRA 15:2)
(Rolling mills--Electric driving)

PAVLOV, V.L., kand.tekhn.nauk; MEIESHKO, V.I., kand.tekhn.nauk;
TOPOROVSKIY, M.P., inzh.

Kinematic interaction of horizontal and vertical slabbing mill rolls. Trudy Inst. chern. met. AN URSR 17:45-54 '62.
(MIRA 15:10)

(Rolling mills)

MELESHKO, V.I., kand.tekhn.nauk; PAVLOV, V.L., kand.tekhn.nauk

Methods of approximate estimates of slabbing mill output. Trudy Inst. chern. met. AN URSR 17:142-146 '62. (MIRA 15:10)
(Rolling mills)

CHEKMAREV, A. P., akademik; MELESHKO, V. I., kand. tekhn. nauk; SAF'IAN, M. M., kand. tekhn. nauk; KHOLODNYY, V. P., inzh.

Temperature conditions of roughing rolls on continuous thin-sheet mills. Nauch. trudy DMI no.48:121-131 '62. (MIRA 15:10)

1. Akademiya nauk Ukrainskoy SSR (for Chekmarev).

(Rolls(Iron mills)) (Thermal stresses)

SAF'YAN, Matvey Matveyevich; MELESHKO, Vladimir Ivanovich; KATSNEL'SON, Genrikh Mayorovich; GOLUBCHIK, R.M., red.; DOBUZHINSKAYA, L.V., tekhn. red.

[Hot rolling of sheet; a handbook for metalworkers] Goriachaia prokatka listov; spravochnik dlia rabochikh. Moskva, Metallurgizdat, 1963. 166 p. (MIRA 16:6)
(Rolling (Metalwork))--Handbooks, manuals, etc.)

CHEKMAREV, A.P.; PROKOF'YEV, V.I.; MELESHKO, V.I.; KILIYEVICH, A.F.

Theoretical basis for the measurement of specific contact forces in rolling with the help of spot dynamometers. Izv. vys. ucheb. zav.; chern. met. 7 no.10:64-69 '64.

(MIRA 17:11)

L 41274-66 EWT(d)/EWT(m)/EWP(f)/EWP(c)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWT(l)
ACC NR: AT6012089 (N) SOURCE CODE: UR/3177/65/021/000/0038/0052
IJP(c) JD/WW/HW/JG/DJ/JT

AUTHOR: Chekmarev, A. P. (Academician AN UkrSSR); Saf'yan, M. M. (Professor); Meleshko, V. I. (Candidate of technical sciences); Prokof'yev, V. I. (Candidate of technical sciences); Avramenko, I. N. (Engineer); Dodoka, V. G. (Engineer); Ksenzuk, F. A. (Engineer); Kudin, D. P. (Engineer); Lola, V. N. (Engineer); Movshovich, V. S. (Engineer); Pavlishchev, V. B. (Engineer); Soroko, L. N. (Engineer); Sukhobrus, Ye. P. (Engineer); Kholodnyy, V. P. (Engineer); Yudin, M. I. (Engineer)

ORG: none

TITLE: Improvements in the techniques of production of Kh18N10T cold-rolled wide-strip steel at the Zaporozhstal' Plant

SOURCE: Dnepropetrovsk. Institut chernoy metallurgii. Trudy, v. 21, 1965. Prokatnoye proizvodstvo (Welding production), 38-52

TOPIC TAGS: stainless steel, bright stock lubricant, metal rolling, sheet metal, industrial plant / Kh18N10T stainless steel, P-28 bright stock lubricant

ABSTRACT: On increasing to 11.8 tons from the previous 10.3 tons the weight of the ingots

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ACC NR: AT6012089

of Kh18N10T stainless steel used to produce 1000 mm wide sheets, the Zaporozhstal' Plant found it possible to reduce by 40-50 kg/mm^2 the wastage of metal during slabbing. Other innovations introduced in recent years at this plant include: fettling, flame scarfing and planing of ingot surfaces so as to eliminate defects of metallurgical origin prior to slabbing. These measures, along with improvements in the ingot reheating regime, have made it possible to increase the productivity of slabbing mills by 15-20%. The ingots themselves are cone-shaped in order to optimize the conditions of crystallization of the molten metal. After trimming and heating to 1050-1300°C the slabs proceed to a continuous strip mill where they are rolled into 1000 mm wide strip. By introducing the cold rolling of this strip in a reversible four-high mill with a reduction of 85% and by abandoning the practice of intermediate quenching during the production of 0.8-1.4 mm thick sheets rolled from 3.0 mm thick stock, using P-28 bright stock (highly viscous mineral oil) as the lubricant, using highly polished rolls, and increasing the convexity of the rolls to offset the increase in roll pressure, and thus streamlining the rolling techniques to an extent at which it became possible to roll in 13 passes 0.8 mm thick strip without overloading the rolls and main drive, the Zaporozhstal' Plant has found it possible to increase by 81% the productivity of its sheet mill and by 180%, the productivity of its reversible cold-rolling mill. The annual savings produced by these innovations amount to: for the slabbing-mill shop, 162,000 rubles; for the sheet-mill shop, 91,000 rubles; for the cold rolling shop, 719,000 rubles. Orig. art. has: 3 figures, 9 tables.

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 015

Card 2/2 LC

L 41263-66 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AT6012091 (N) SOURCE CODE: UR/3177/65/021/000/0310/0313

AUTHOR: Meleshko, V. I. (Candidate of technical sciences); Kachaylov, A. P. (Candidate of technical sciences)

ORG: none

TITLE: Effect of work hardening and temperature on the mechanical properties of Kh18N10T steel

SOURCE: Dnepropetrovsk. Institut chernoy metallurgii. Trudy, v. 21, 1965. Prokatnoye proizvodstvo (Welding production), 310-313

TOPIC TAGS: tensile testing machine, stainless steel, mechanical property, temperature dependence, material deformation / UM-5A tensile testing machine, Kh18N10T steel

ABSTRACT: This effect was investigated for specimens of hot-rolled Kh18N10T stainless steel 3.8-3.9 mm thick which were rolled in a four-high mill to various degrees of deformation (8, 13, 20, 40, 60, 70 and 75%) and then subjected to hot tensile strength tests at five different temperatures (0, 100, 200, 300 and 400°C, 20 min each time) in an UM-5A tensile testing machine in order to elucidate the influence of the temperature conditions of deformation on

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the yield point. To this end, a tubular electric furnace measuring 300 mm in length and 95 mm in inside diameter was attached to the UM-5A machine. The findings were used to plot the yield point $\sigma_{0.2}$, ultimate strength σ_B and elongation per unit length δ as a function of the degree of preliminary deformation for each of the five test temperatures (Figs. 1, 2, 3)

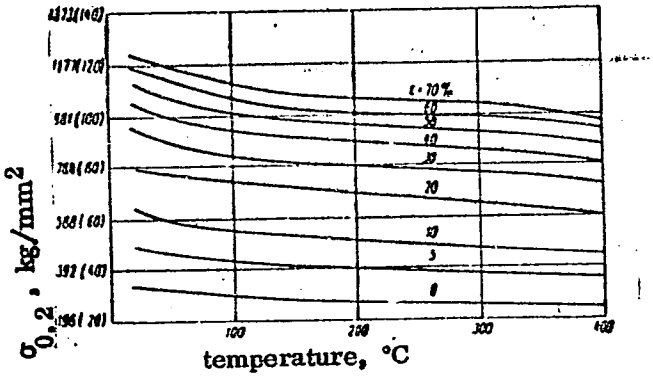

Fig. 1. Effect of temperature and degree of deformation on the yield point of Kh18N10T steel

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ACC NR: AT6012091

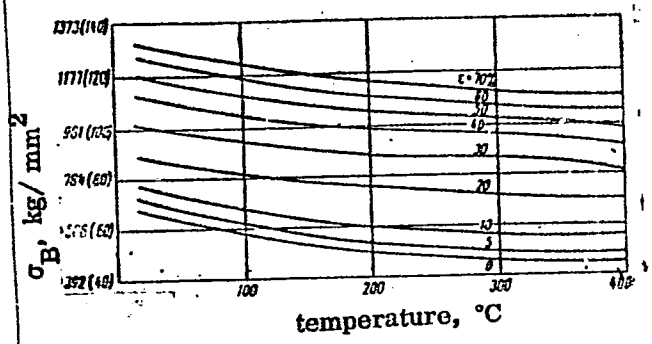

Fig. 2. Effect of temperature and degree of deformation on the ultimate strength of Kh18N10T steel

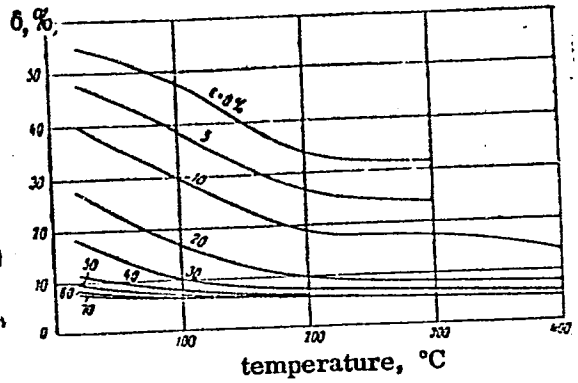

Fig. 3. Effect of temperature and degree of deformation on the elongation per unit length of Kh18N10T

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L 41263-66
ACC NR: AT6012091

It is thus established that $\sigma_{0.2}$ and σ_B decrease with increasing temperature and that for $\sigma_{0.2}$ this decrease is virtually independent of the degree ϵ of deformation. The effect of temperature is the strongest within the ranges of 20-200 and 300-400°C. As ϵ increases the strength characteristics increase for any test temperature. The plasticity of steel decreases both with increase in preliminary deformation ϵ and with increase in temperature within the limits investigated. Orig. art. has: 4 figures, 1 table.

SUB CODE: 13, 11,20/SUBM DATE: none

Card 4/4 LC